REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claim 1 has been amended to further recite that the secondary burners are at a location to combust the combustible gas from the thermal reduction of the metal oxide. Basis for this is found at page 9, lines 2-4.

The Advisory Action stated in part that the claims did not sufficiently identify the location of the secondary combustion to distinguish over Meissner et al in view of Fuji et al, and optionally Sarma et al. Claim 1 now makes clear that the secondary burners are at a location to combust the combustible gas from the thermal reduction of the metal oxide.

In any case, there is no teaching in the prior art for *any* differentiation in the oxidant supplied at different locations of the furnace, i.e., the claimed oxygen concentration in the primary combustion air being lower than the oxygen concentration in the secondary combustion air. For example, Meissner et al uses the same language to describe the oxidant for both the burners 40 supplied with fuel and oxidant, and the additional oxidant "supplied to burn volatiles and CO evolved from the compacts." In each case the oxidant is described as "preheated or oxygen enriched air" (col. 6, lines 4-7). Fuji et al describes supplying a secondary combustion air to burn combustible gases released from the iron oxide agglomerates and carbonaceous material, but does not discuss the oxygen concentration of the primary combustion air or the secondary combustion air.

Indeed, Meissner et al *teaches against* the claimed feature whereby the oxygen concentration in the primary combustion air, which is the air supplied to the primary burners together with fuel, is controlled to be lower than the oxygen concentration in the secondary combustion air, which is the air supplied to secondary burners at a location to combust the combustible gas from the thermal reduction of the metal oxide. The burners 40 of Meissner et al are supplied with both air and fuel, and so correspond to the "primary burners." At least

some of the primary burners 40 must be provided at the early stage of heating to initially generate heat by burning fuel (col. 5, lines 66-67; "The high temperature heat source 40 is initially generated by burning fuel"). Meissner et al also teaches that "efficient combustion is achieved due to the high operating temperature" (col. 6, lines 7-8) and "operating with an oxidizing atmosphere at high temperature" in this early stage of heating (col. 6, lines 12-13).

However as previously explained, the present invention is based on the recognition that a higher oxygen content in the oxidant supplied to the primary burners would create a higher flame temperature and NO_x content (see specification, pages 11-12), and lower oxygen concentration in the primary combustion air limits the flame temperature and NO_x produced by the primary burners. Since Meissner et al instead teaches that efficient combustion is achieved due to the high operating temperature, and operating with an oxidizing atmosphere at high temperature in the early stage of heating and reduction, Meissner et al teaches against a lower oxygen concentration in the primary combustion air at this location since this would reduce the operating temperature in the early stage of heating.

Nor can the claimed lower oxygen concentration in the primary combustion air be dismissed as the result of routine experimentation within the teachings of the art, to optimize productivity, since it is contrary to the teachings of Meissner et al. That is, any optimization suggested by Meissner et al would be designed to provide a high initial operating temperature and a higher oxygen concentration in the primary combustion air.

As for Sarma et al, this reference cannot teach a lower oxygen concentration in the primary combustion air because it teaches super-stoichiometric ratios in the oxidizing zone, with elevated concentrations of oxygen in the oxidant, which would suggest a high oxygen concentration in the primary combustion air of Meissner et al. This is the opposite of the claims.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early Notice of Allowability.

Respectfully submitted,

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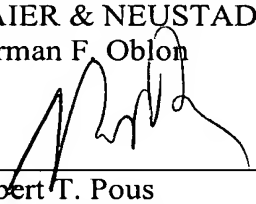

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